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WHAT IS CLAIMED IS:

1. A high-frequency semiconductor device, comprising:
 - an amplifier;
 - 5 a dielectric substrate provided on an input side or an output side of the amplifier;
 - a plurality of transmission lines formed on a surface of the dielectric substrate and connected electrically to the amplifier; and
 - a resistor formed on the surface of the dielectric substrate and
 - 10 connected electrically between the plurality of transmission lines.
2. A high-frequency semiconductor device according to claim 1, wherein the plurality of transmission lines have an electrical length of substantially $\lambda/4$ with respect to an operation frequency, and the resistor has the same length
- 15 as that of the plurality of transmission lines in a traveling direction of a high-frequency power.
3. A high-frequency semiconductor device according to claim 1, wherein widths of the plurality of transmission lines are made larger on the amplifier
- 20 side and smaller on the other side.
4. A high-frequency semiconductor device, comprising:
 - first and second amplifiers;
 - a dielectric substrate provided on an input side or an output side of
 - 25 the first and second amplifiers;
 - a first transmission line formed on a surface of the dielectric substrate and connected electrically to the first amplifier;
 - a second transmission line formed on a surface of the dielectric substrate and connected electrically to the second amplifier; and
 - 30 a resistor formed on a surface of the dielectric substrate and connected electrically between the first and second transmission lines.
5. A high-frequency semiconductor device according to claim 4, wherein the first and second transmission lines have an electrical length of substantially
- 35 $\lambda/4$ with respect to an operation frequency, and the resistor has the same length as those of the first and second transmission lines in a traveling direction of a high-frequency power.

6. A high-frequency semiconductor device according to claim 4, wherein widths of the first and second transmission lines are made larger on the first and second amplifiers side and smaller on the other side.
- 5
7. A high-frequency semiconductor device, comprising:
- first and second amplifiers;
 - a dielectric substrate provided on an input side or an output side of the first and second amplifiers;
 - 10 a first transmission line formed on a surface of the dielectric substrate and connected electrically to the first amplifier;
 - a second transmission line formed on a surface of the dielectric substrate and connected electrically to the second amplifier; and
 - 15 a resistor and a third transmission line formed on a surface of the dielectric substrate and connected electrically between the first and second transmission lines.
8. A high-frequency semiconductor device according to claim 7, wherein the first to third transmission lines have an electrical length of substantially $\lambda/4$ with respect to an operation frequency, and the resistor has the same length as those of the first to third transmission lines in a traveling direction of a high-frequency power.
- 20
9. A high-frequency semiconductor device according to claim 7, wherein a first resistor, the third transmission line, and a second resistor are connected successively between the first and second transmission lines.
- 25
10. A high-frequency semiconductor device according to claim 7, wherein widths of the first to third transmission lines are made larger on the first and second amplifier side and smaller on the other side.
- 30
11. A high-frequency semiconductor device according to claim 7, wherein a width of the third transmission line is made larger on the first and second amplifiers side and smaller on the other side.
- 35
12. A high-frequency semiconductor device, comprising:
- first and second amplifiers;

a dielectric substrate provided on an input side or an output side of the first and second amplifiers;

first and second transmission lines formed on a surface of the dielectric substrate and connected electrically to the first amplifier;

5 third and fourth transmission lines formed on a surface of the dielectric substrate and connected electrically to the second amplifier;

a first resistor connected between the first and second transmission lines;

10 a second resistor connected between the second and third transmission lines; and

a third resistor connected between the third and fourth transmission lines.

13. A high-frequency semiconductor device according to claim 12, wherein the
15 first to fourth transmission lines have an electrical length of substantially $\lambda/4$ with respect to an operation frequency, and the first to third resistors have the same length as those of the first to fourth transmission lines in a traveling direction of a high-frequency power.

20 14. A high-frequency semiconductor device, comprising:

first and second amplifiers;

a dielectric substrate provided on an input side or an output side of the first and second amplifiers;

25 first and second transmission lines formed on a surface of the dielectric substrate and connected electrically to the first amplifier;

third and fourth transmission lines formed on a surface of the dielectric substrate and connected electrically to the second amplifier;

a first resistor connected between the first and second transmission lines;

30 a second resistor and a fifth transmission line connected between the second and third transmission lines; and

a third resistor connected between the third and fourth transmission lines.

35 15. A high-frequency semiconductor device according to claim 14, wherein the first to fourth transmission lines have an electrical length of substantially $\lambda/4$ with respect to an operation frequency, and the first to third resistors have the

same length as those of the first to fourth transmission lines in a traveling direction of a high-frequency power.

16. A high-frequency semiconductor device, comprising:

- 5 first and second amplifiers;
- a dielectric substrate provided on an input side or an output side of the first and second amplifiers;
- first and second transmission lines formed on a surface of the dielectric substrate and connected electrically to the first amplifier;
- 10 third and fourth transmission lines formed on a surface of the dielectric substrate and connected electrically to the second amplifier;
- a first resistor connected between the first and second transmission lines;
- a second resistor connected between the third and fourth transmission
- 15 lines;
- a third resistor connected to an end of the second transmission line opposed to the third transmission line;
- a fourth resistor connected to an end of the third transmission line opposed to the second transmission line; and
- 20 a unit for connecting the third and fourth resistors electrically.

17. A high-frequency semiconductor device according to claim 13, wherein the first to fourth transmission lines have an electrical length of substantially $\lambda/4$ with respect to an operation frequency, and the first to fourth resistors have the same length as those of the first to fourth transmission lines in a traveling direction of a high-frequency power.

18. A high-frequency semiconductor device, comprising:

- 30 first and second amplifiers;
- a dielectric substrate provided on an output side or an input side of the first and second amplifiers;
- first and second transmission lines formed on a surface of the dielectric substrate and connected electrically to the first amplifier;
- third and fourth transmission lines formed on a surface of the
- 35 dielectric substrate and connected electrically to the second amplifier;
- a first resistor connected between the first and second transmission lines;

a second resistor connected between the third and fourth transmission lines;

a first input terminal or output terminal on a power combining circuit connected electrically to a side of the first and second transmission lines opposite to a side thereof connected to the first amplifier;;

a second input terminal or output terminal on the power combining circuit connected electrically to a side of the third and fourth transmission lines opposite to a side thereof connected to the second amplifier; and

a third resistor connected between the first input terminal and the second input terminal or between the first output terminal and the second output terminal.

19. A high-frequency semiconductor device, comprising:

first and second amplifiers;

a dielectric substrate provided on an output side or an input side of the first and second amplifiers;

first and second transmission lines formed on a surface of the dielectric substrate and connected electrically to the first amplifier;

third and fourth transmission lines formed on a surface of the dielectric substrate and connected electrically to the second amplifier;

a first resistor connected between the first and second transmission lines;

a second resistor and a fifth transmission line connected between the second and third transmission lines;

a third resistor connected between the third and fourth transmission lines;

a first input terminal or output terminal on a power combining circuit connected electrically to a side of the first and second transmission lines opposite to a side thereof connected to the first amplifier; and

a second input terminal or output terminal on the power combining circuit connected electrically to a side of the third and fourth transmission lines opposite to a side thereof connected to the second amplifier.

20. A high-frequency semiconductor device, comprising:

an amplifier;

an incoming dielectric substrate provided on an input side of the amplifier;

an outgoing dielectric substrate provided on an output side of the amplifier;

an incoming transmission line formed on a surface of the incoming dielectric substrate and connected electrically to the amplifier; and

5 an outgoing transmission line formed on a surface of the outgoing dielectric substrate and connected electrically to the amplifier,

wherein a thickness of the incoming dielectric substrate is different from that of the outgoing dielectric substrate.

10 21. A high-frequency semiconductor device according to claim 20, wherein either the incoming transmission line or the outgoing transmission line is provided as a plurality in number, and a resistor is connected between the plurality of transmission lines.

15 22. A high-frequency semiconductor device according to claim 20, wherein a width of the incoming transmission line is equal to that of the outgoing transmission line.